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APPEAL BRIEF FEE TRANSMITTAL

Attorney Docket No.	837.1960
Application Number	09/774,686
Filing Date	February 1, 2001
First Named Inventor	Shigeki WATANABE
Group Art Unit	2633
Examiner Name	Phan, Hanh
AMOUNT ENCLOSED	950.00

FEE CALCULATION (fees effective 12/08/04)

CLAIMS AS AMENDED	Claims Remaining After Amendment	Highest Number Previously Paid For	Number Extra	Rate	Calculations
TOTAL CLAIMS		- =	0	X $ 50.00 =	$ 0.00
INDEPENDENT CLAIMS		- =	0	X $ 200.00 =	0.00
Since an Official Action set an original due date of March 5, 2005, petition is hereby made for an extension to cover the date this reply is filed for which the requisite fee is enclosed (1 month ($120)); (2 months ($450)); (3 months ($1,020)); (4 months ($1,590)); (5 months ($2,160):					450.00
If Appeal Brief is enclosed, add ($500.00)					500.00
If Statutory Disclaimer under Rule 20(d) is enclosed, add fee ($130.00)					
Information Disclosure Statement (Rule 1.17(p)) ($180.00)					
Total of above Calculations =					$ 950.00
Reduction by 50% for filing by small entity (37 CFR 1.9, 1.27 & 1.28)					
TOTAL FEES DUE =					$ 950.00

(1) If entry (1) is less than entry (2), entry (3) is "0".
(2) If entry (2) is less than 20, change entry (2) to "20".
(4) If entry (4) is less than entry (5), entry (6) is "0".
(5) If entry (5) is less than 3, change entry (5) to "3".

METHOD OF PAYMENT

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☒ If the above-noted "AMOUNT ENCLOSED" is not correct, the Commissioner is hereby authorized to credit any overpayment or charge any additional fees necessary to:

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Deposit Account Name	STAAS & HALSEY LLP

☒ The Commissioner is also authorized to credit any overpayments or charge any additional fees required under 37 CFR 1.16 (filing fees) or 37 CFR 1.17 (processing fees) during the prosecution of this application, including any related application(s) claiming benefit hereof pursuant to 35 USC § 120 (e.g., continuations/divisionals/CIPs under 37 CFR 1.53(b) and/or continuations/divisionals/CPAs under 37 CFR 1.53(d)) to maintain pendency hereof or of any such related application.

SUBMITTED BY: STAAS & HALSEY LLP

Typed Name	Paul W. Bobowiec	Reg. No.	47,431
Signature	Paul W. Bobowiec	Date	April 26, 2005

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PATENT & TRADEMARK OFFICE

Docket No. 837.1960

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:

Shigeki WATANABE

Application No.: 09/774,686 Group Art Unit: 2633

Filed: February 1, 2001 Examiner: Phan, Hanh

For: METHOD, DEVICE, AND SYSTEM FOR REGENERATING OPTICAL SIGNAL

APPEAL BRIEF UNDER 37 CFR § 41.37

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Sir:

In a Notice of Appeal filed January 5, 2005 the applicant appealed the Examiner's rejections of claims 1-3, 5-8, 10-16, 18-20, 22-32 asserted in the Final Office Action mailed August 5, 2004, the due date for filing of the Appellant's Brief being March 5, 2005. A two-month petition is filed extending the due date to May 5, 2005. Appellant's Brief together with the requisite fee set forth in 37 CFR § 1.17 is submitted herewith.

04/27/2005 JADDO1 00000015 09774686

01 FC:1252 450.00 OP
02 FC:1402 500.00 OP

I. REAL PARTY IN INTEREST (37 CFR § 41.37(c)(1)(i))

The real party in interest is Fujitsu Limited, the assignee of the subject application.

II. RELATED APPEALS AND INTERFERENCES (37 CFR § 41.37(c)(1)(ii))

The applicant and the undersigned representative are not aware of any other appeals or interferences that will directly affect or be directly affected by, or have a bearing on, the Board's decision in the pending appeal.

III. STATUS OF CLAIMS (37 CFR § 41.37(c)(1)(iii))

Claim 1-32 are pending.

Claims 4, 9, 17, and 21 are objected to as being dependent upon a rejected base claim but the Examiner has indicated claims 4, 9, 17, and 21 would be allowable if rewritten in independent form including all limitations of the base claims.

Claims 1-3, 5-6, 14-16, 18-19 and 26-30 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Mamyshev (U.S.P. 6,141,129) in view of Taneda et al. (U.S.P. 6,233,385) and are on appeal; and claims 7-8, 10-13, 20, 22-25, 31 and 32 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Mamyshev in view of Taneda and further in view of Doran et al. (U.S.P. 6,738,542) and are on appeal.

IV. STATUS OF AMENDMENTS (37 CFR § 41.37(c)(1)(iv))

No amendments have been filed subsequent to the final rejection made on July 8, 2004.

V. SUMMARY OF INVENTION (37 CFR § 41.37(c)(1)(v))

Claim 1 recites a method inputting an optical signal into an optical waveguide structure for providing a nonlinear effect (FIG. 2, page 13, lines 16-23). The method of claim 1 includes generating chirp in the optical signal by the nonlinear effect (page 11, line 3 - page 12, line 10 and page 13, line 24 - page 14, line 4). Claim 1 also recites a method supplying an output optical signal output from the optical waveguide structure to an optical filter having transmission bands at longer and shorter wavelength sides than a center wavelength of said output optical signal output from said optical waveguide structure to remove a component in which said chirp is

small from said output optical signal (FIGs. 2 and 5, page 14, lines 4-9). Claim 1 also recites a method wherein the transmission bands at longer and shorter wavelength sides being longer and shorter for a predetermined wavelength distant from said center wavelength (FIG. 5, page 17, line 23 - page 18, line 14).

Claim 14 recites a device including an optical waveguide structure (FIG. 2, page 13, lines 16-23) for providing a nonlinear optical effect so that chirp is generated in an optical signal input. The device of claim 14 also includes an optical filter (FIGs. 2) having transmission bands at longer and shorter wavelength sides than a center wavelength of said output optical signal output from said optical waveguide structure for accepting an output optical signal output from said optical waveguide structure to remove components in which said chirp is small and large from said output optical signal. (FIGs. 2 and 5, page 14, lines 4-9). Claim 14 also recites that transmission bands (FIG. 5, page 17, line 23 - page 18, line 14) at longer and shorter wavelength sides being longer and shorter for a predetermined wavelength distant from said center wavelength.

Claim 26 recites a system including an optical fiber transmission line (FIG. 10, page 23, line 18 - page, 24, line 2) for transmitting an optical signal. The system of claim 26 also includes an optical signal regenerating device (FIG. 10, page 24, lines 2-6) for accepting an optical signal output from said optical fiber transmission line. Claim 26 also recites the optical signal regenerating device including an optical waveguide structure for providing a nonlinear optical effect so that chirp is generated in said optical signal supplied (Page 24, lines 11-15). Claim 26 also recites an optical filter (FIGs. 2 and 5, page 14, lines 4-9) having transmission bands at longer and shorter wavelength sides than a center wavelength of said output optical signal output from said optical waveguide structure for accepting an output optical signal output from said optical waveguide structure to remove a component in which said chirp is small and large from said output optical signal. The system of claim 26 also recites (FIG. 5, page 17, line 23 - page 18, line 14) said transmission bands at longer and shorter wavelength sides being longer and shorter for a predetermined wavelength distant from said center wavelength.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL (37 CFR § 41.37(c)(1)(vi))

Claims 1-3, 5, 6, 14-16, 18, 19 and 26-30 stand rejected under 35 U.S.C. §103(a) as

being unpatentable over Mamyshev (U.S.P. 6,141,129) in view of Taneda et al. (U.S.P. 6,233,385); and claims 7, 8, 10-13, 20, 22-25, 31 and 32 are rejected under 35 U.S.C. §103(a) as being unpatentable over Mamyshev in view of Taneda and further in view of Doran et al. (U.S.P. 6,738,542).

VII. ARGUMENT OF EACH GROUND OF REJECTION PRESENTED FOR REVIEW (37 CFR § 41.37(c)(1)(vii))

All arguments are directed to the one and only ground of rejection. All citations to "Office Action" refer to the last and final Office Action of August 5, 2004.

A. Claim 1

In page 3, lines 1-6, the Examiner acknowledges that "Mamyshev differs from claims 1, 14, and 26 and that he does not specifically teach the optical filter having transmission bands at longer and shorter wavelength sides than a center wavelength of said output optical signal output from said optical waveguide structure and transmission bands at longer and shorter wavelength sides being longer and shorter for a predetermined wavelength distant from said center wavelength."

Taneda is cited as providing these features. More specifically, the Examiner cites Figs. 1 and 2, col. 3, lines 39-67, col. 4, lines 1-67, col. 6, lines 6-9 and lines 44-67, and col. 7, lines 1-24 of Taneda. As discussed below, Taneda does not discuss the features of claim 1 for which it is cited.

1. Features Not Discussed By Cited Art

To establish obviousness under §103, the Examiner must consider the claimed invention "as a whole," and the prior art must teach or suggest all of the claim features. *See* Manual Of Patent Examining Procedure § 2143.03 (8th ed. Rev. 2 May 2004)("MPEP"); *In re Royka*, 180 U.S.P.Q. 580, 583 (C.C.P.A. 1974); *In re Fine*, 5 U.S.P.Q.2d 1596, 1599 (Fed. Cir. 1988); *Ruiz v. A.B. Chance Co.*, 69 U.S.P.Q.2d 1686, 1690 (Fed. Cir. 2004).

<u>Longer And Shorter Wavelength Sides Not Discussed In Taneda</u>

Claim 1 recites a method supplying an output optical signal output from said optical waveguide structure to "an optical filter having transmission bands at longer <u>and</u> shorter wavelength sides than a center wavelength of an output optical signal output and transmission

bands at longer and shorter wavelength sides longer and shorter for a predetermined wavelength distant from the center wavelength (Emphasis added).

Instead, Taneda merely discusses (col. 3, lines 54-60) that:

> (the) wavelength selection element 23 (illustrated in FIG. 1) is comprised of the dielectric multilayer optical filter. This wavelength selection element removes the wavelength component, except for a specified wavelength from among the amplified signal light S_{12}. output from the parametric amplification element 22, and outputs the only signal light S_{13} having a specified wavelength of λ_1.

In FIG. 2, Taneda merely illustrates (col. 4, lines 63-67) that:

> (t)he signal light S_{22} having a wavelength of λ_1 is emitted by removing the wavelength component, except a specified wavelength by the optical filter 33, from among the signal light S_{21} having an increased spectral band width.

That is, Taneda does not discuss supplying an output optical signal output from an optical waveguide structure to an optical filter having transmission bands "at longer and shorter wavelength sides" and transmission bands at "longer and shorter wavelength sides."

Thus, the rejection is incorrect since none of the cited art discusses features recited by claim 1.

2. Improper Combination

Further, the basis for combining the prior references of Mamyshev and Taneda is the assumption that Taneda discusses "an optical filter having transmission bands at longer and shorter wavelength sides that a center wavelength of the output optical signal output from the optical waveguide structure and the transmission bands at longer and shorter wavelength sides being longer and shorter for a predetermined wavelength distant from the center wavelength."

However, as shown above, Taneda does not discuss transmission bands at longer and shorter wavelength sides.

The Mamyshev reference relates to (See, for example, FIGs. 5-10) optical regenerator bandpass filters having a center frequency, which is different from a center frequency of optical signal inputted into NLMs. Therefore, the center wavelength of the output optical signal outputted from Mamyshev's optical bandpass filter is different from the center wavelength of the optical signal inputted into the NLM. Mamyshev teaches (See, for example FIG. 11) that to make the center wavelength of the output optical signal of the filter equal to the center wavelength of

the input optical signal, two optical signal regenerators are required. Further, Mamyshev does not teach a removal of extremely peaky fluctuation components in which the chirp is large and whose wavelength are outside of the transmission bands.

Taneda discloses (col. 3, starting at line 41) a light limiter including a parametric amplification element and a wavelength selection element. In a light limiter as taught by Taneda, a loss of the light is varied by changing an input light power, and an incidence of signal light having power excessive for optical components is prevented by controlling an output light power.

One skilled in the art would not look to Taneda's light limiter for achieving higher accuracy in a return-to-zero data stream method as discussed by Mamyshev.

Thus the Examiner's contention that it is obvious to modify Mamyshev to incorporate such a feature is not valid.

B. Claims 2, 5, and 6

As discussed above with reference to claim 1, Taneda does not discuss supplying an output optical signal output from an optical waveguide structure to an optical filter having transmission bands at longer and shorter wavelength sides and transmission bands at longer and shorter wavelength sides.

Claims 2, 5, and 6 more specifically recite a method, or features thereof. Claim 2 recites a method "wherein said optical waveguide structure comprises an optical fiber for providing normal dispersion." Claim 5 recites a method "further comprising supplying said optical signal to be input into said optical waveguide structure to an optical filter to remove a noise component outside of a signal band in said optical signal." Claim 6 recites a method "further comprising optically amplifying said optical signal to be input into said optical waveguide structure so that a required amount of chirp is obtained."

As discussed above with reference to claim 1, the rejection is incorrect since none of the cited art discuss features recited by claims 2, 5, and 6 further defining the method recited by claim 1, and there is no motivation to combine the references.

C. Claim 3

As discussed above with reference to claim 1, Taneda does not discuss supplying an

output optical signal output from an optical waveguide structure to an optical filter having transmission bands at longer and shorter wavelength sides and transmission bands at longer and shorter wavelength sides.

Claim 3 more specifically recites a method, or features thereof. Claim 3 recites a method "wherein said optical filter comprises an optical bandstop filter having a center wavelength substantially coinciding with the center wavelength of said optical signal."

In page 4, lines 9-12 the Examiner contends the features are discussed by a combination of Mamyshev and Taneda. More specifically the Examiner cites FIGs. 1 and 2 and col. 3, lines 39-67 and col. 4 lines 1-67 of Taneda.

Taneda does not discuss the features of claim 3 of an optical bandstop filter having a center wavelength substantially coinciding with the center wavelength of said optical signal, for which it is cited.

Rather, Taneda merely discusses (discusses (col. 3, lines 54-60) that:

> (the) wavelength selection element 23 (illustrated in FIG. 1) is comprised of the dielectric multilayer optical filter. This wavelength selection element removes the wavelength component, except for a specified wavelength from among the amplified signal light S_{12}. output from the parametric amplification element 22, and outputs the only signal light S_{13} having a specified wavelength of λ_1.

Since the features are not discussed by the cited art and there is no motivation to combine the references, the rejection is incorrect.

D. Claim 14

Claim 14 is patentable over the cited art for reasons similar to those discussed above for claim 1. Claim 14 is similar to claim 1, but specifies a device including "an optical filter having transmission bands at longer and shorter wavelength sides than a center wavelength of said output optical signal output from said optical waveguide structure for accepting an output optical signal output from said optical waveguide structure to remove components in which said chirp is small and large from said output optical signal, said transmission bands at longer and shorter wavelength sides being longer and shorter for a predetermined wavelength distant from said center wavelength."

1. Features Not Discussed By Cited Art

The Examiner acknowledges that the feature is not discussed by Mamyshev. As

discussed above Taneda does not discuss supplying an output optical signal output from an optical waveguide structure to an optical filter having transmission bands "at longer and shorter wavelength sides" and transmission bands at "longer and shorter wavelength sides."

Instead, Taneda discusses (col. 3, lines 54-60) that:

> (the) wavelength selection element 23 (illustrated in FIG. 1) is comprised of the dielectric multilayer optical filter. This wavelength selection element removes the wavelength component, except for a specified wavelength from among the amplified signal light S_{12}. output from the parametric amplification element 22, and outputs the only signal light S_{13} having a specified wavelength of λ_1.

Thus, the rejection is incorrect since none of the cited art discusses features recited by claim 14.

2. Improper Combination

Further, as shown above, the basis for combining the prior references of Mamyshev and Taneda is incorrect in Taneda does not discuss transmission bands at longer and shorter wavelength sides.

Furthermore, as shown above the prior art references are incompatible, and that one skilled in the art would not look to Taneda's light limiter for achieving higher accuracy in a return-to-zero data stream method as discussed by Mamyshev.

Thus the Examiner's contention that it is obvious to modify Mamyshev to incorporate such a feature is not valid.

E. Claims 15, 18 and 19

As discussed above with reference to claim 14, Taneda does discuss a device supplying an output optical signal output from an optical waveguide structure to an optical filter having transmission bands at longer and shorter wavelength sides and transmission bands at longer and shorter wavelength sides.

Claims 15, 18, and 19 more specifically recite a device or features thereof. Claim 15 recites a device "wherein said optical waveguide structure comprises an optical fiber for providing normal dispersion." Claim 18 recites a device "further comprising an optical filter for accepting said optical signal to be input into said optical waveguide structure to remove a noise component outside of a signal band in said optical signal." Claim 19 recites a device "further

comprising an optical amplifier for optically amplifying said optical signal to be input into said optical waveguide structure so that a required amount of chirp is obtained.

As discussed above with reference to claim 14, the rejection is incorrect since none of the cited art discusses features recited by claims 15, 18, and 19 further defining the features recited by claim 14, and there is no motivation to combine the art.

F. Claim 16

Claim 16 is patentable over the cited art for reasons similar to those discussed above for claim 3. Claim 16 recites a device "wherein said optical filter comprises an optical bandstop filter having a center wavelength substantially coinciding with the center wavelength of said optical signal."

As discussed above with reference to claim 3, the rejection is incorrect since none of the cited art discusses features further defining the features recited by claim 14, in particular Taneda does not discuss the features of claim 16 of an optical bandstop filter having a center wavelength substantially coinciding with the center wavelength of said optical signal for which it is cited, and there is no motivation to combine the art.

G. Claim 21

Claim 21 is patentable over the cited art for reasons similar to those discussed above for claim 1. Claim 21 is similar to claim 1, but recites a system including "an optical filter having transmission bands at longer and shorter wavelength sides than a center wavelength of said output optical signal output from said optical waveguide structure for accepting an output optical signal output from said optical waveguide structure to remove components in which said chirp is small and large from said output optical signal, said transmission bands at longer and shorter wavelength sides being longer and shorter for a predetermined wavelength distant from said center wavelength."

1. Features Not Discussed By Cited Art

The Examiner acknowledges that the feature is not discussed by Mamyshev. As discussed above Taneda does not discuss supplying an output optical signal output from an optical waveguide structure to an optical filter having transmission bands "at longer and shorter wavelength sides" and transmission bands at "longer and shorter wavelength sides."

Instead, Taneda merely discusses (col. 3, lines 54-60) that:

> (the) wavelength selection element 23 (illustrated in FIG. 1) is comprised of the dielectric multilayer optical filter. This wavelength selection element removes the wavelength component, except for a specified wavelength from among the amplified signal light S_{12}. output from the parametric amplification element 22, and outputs the only signal light S_{13} having a specified wavelength of λ_1.

Thus, the rejection is incorrect since none of the cited art discusses features recited by claim 21.

2. Improper Combination

Further, as shown above, the basis for combining the prior references of Mamyshev and Taneda is incorrect in Taneda does not discuss transmission bands at longer and shorter wavelength sides.

In addition, as shown above one skilled in art would not look to a light limiter as taught by Taneda to modify accuracy of a return-to-zero data stream as taught by Mamyshev.

Thus the Examiner's contention that it is obvious to modify Mamyshev to incorporate such a feature is not valid.

H. Claims 27-30

As discussed above with reference to claim 21, Taneda does not discuss a system supplying an output optical signal output from an optical waveguide structure to an optical filter having transmission bands at longer and shorter wavelength sides and transmission bands at longer and shorter wavelength sides.

Claims 27-30 more specifically recite a system or features thereof. Claim 27 recites a system "further comprising a second optical fiber transmission line for transmitting said output optical signal." Claim 28 recites a system "further comprising an optical transmitter connected to an input end of said optical fiber transmission line, and an optical receiver connected to an output end of said second optical fiber transmission line." Claim 29 recites a system "wherein said optical signal transmitted by said optical fiber transmission line comprises WDM signal light obtained by wavelength division multiplexing a plurality of optical signals." Claim 30 recites a system "wherein each of said optical fiber transmission line and said second optical fiber transmission line comprises an optical amplifier repeater transmission line including at least one

optical amplifier."

As discussed above with reference to claim 21, the rejection is incorrect since none of the cited art discusses features recited by claims 27-30 further defining the system recited by claim 21, and there is no motivation to combine the art.

I. Claim 7

Claim 7 more specifically recites a method, or features thereof. Claim 7 recites a method further comprising supplying said output optical signal to a dispersion compensator so that said output optical signal undergoes dispersion compensation.

The Examiner contends that Mamyshev as modified by Taneda "teaches all aspects of the claimed combination except fails to teach a dispersion compensator." (Action at page 5, lines 10-11).

As discussed above with reference to claim 1, Taneda does not discuss supplying an output optical signal output from an optical waveguide structure to an optical filter having transmission bands at longer and shorter wavelength sides and transmission bands at longer and shorter wavelength sides.

The combination lacks a motivation sufficiently based on prior art of record. To establish a *prima facie* case of obviousness based on multiple references, there must be some teaching that would have led one of ordinary skill in the art at the time of the invention to combine the references. MPEP § 2143.01; In re Thrift, 298 F3d. 1357, 1365, 63 U.S.P.Q.2d 2002, 2006 (Fed. Cir. 2002) (quoting In re Fine, 837 F.2d 1071, 1074, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988)); In re Rouffet, 47 U.S.P.Q.2d 1453, 1455 (Fed. Cir. 1998). However, the Examiner has not identified the source of the motivation for adding either.

The basis for combining the prior references of Mamyshev and Taneda was the assumption that Taneda discusses "an optical filter having transmission bands at longer and shorter wavelength sides that a center wavelength of the output optical signal output from the optical waveguide structure and the transmission bands at longer and shorter wavelength sides being longer and shorter for a predetermined wavelength distant from the center wavelength."

However, as shown above, Taneda does not discuss transmission bands at longer and shorter wavelength sides. Thus the Examiner's contention that it is obvious to modify Mamyshev to

incorporate such a feature , that is not in Taneda, and further with Doran is not valid.

The Examiner contends that one of ordinary skill will have been motivated to modify Doran to use a dispersion compensator since "the dispersion compensator has advantage of allowing compensating the dispersion of the signal."

The combination is also incorrect because the motive to combine is too general. See, e.g., In re Kotzab, 217 F.3d 1365, 1371, 55 USPQ2d 1313, 1317(Fed. Cir. 2000) ("particular findings must be made as to the reason the skilled artisan, with no knowledge of the claimed invention, would have selected these components for combination in the manner claimed"). MPEP § 2144.08 states that "[w]here applicable, the [Examiner's] findings should clearly articulate which portions of the *reference* [not combination] support any rejection.

If this over-general rationale leads to obviousness, then any feature can be said to be included for the benefit provided by that added feature by itself, without any motivation provided by the prior art. However, this is clearly not the case.

Doran discloses (col. 2, staring at line 15) a solution or soliton-like pulse-based optical communication system comprising a length of optical fibre divided into a plurality of sections wherein the average dispersion of the length of fibre is significantly different from the dispersion of each section. Doran further teaches (col. 5, lines 60-64) that a source of solitons T and an optical waveguide consisting of successive elements A_1 , B_1-A_n, B_n having successively normal and anomalous dispersion. The elements B_1 etc. provide compensation for the dispersion in the elements A_1.

One skilled in the art would not look to Doran's system to modify a return -to-zero data stream system as discussed by Mamyshev.

The rejection is incorrect since Mamyshev and Taneda do not discuss the feature relied on, and there is no motivation to combine the art.

J. Claim 20

Claim 20 is patentable over the cited art for reasons similar to those discussed above for claim 7. Claim 20 is similar to claim 7, but recites a device further comprising a dispersion compensator for accepting said output optical signal.

The Examiner contends that Mamyshev as modified by Taneda teaches all aspects of the

claimed device except a dispersion compensator.

As discussed above with reference to claim 14, the rejection is incorrect since Mamyshev and Taneda do not discuss the feature relied on, and there is no motivation to combine the art.

K: Claims 8, 10-13, and 31

Claims 8, 10-13, and 31 more specifically recite a method, or features thereof. Claim 8 recites a method wherein said "adjusting a dispersion and input power of said second optical fiber so that pulse compression is performed to such an extent that a defect near the pulse peak of an optical signal output from said second optical fiber is reduced." Claim 10 recites a method further comprising performing pulse compression on said optical signal to be input into said optical waveguide structure.

Claim 11 recites a method wherein said pulse compression performing step comprises :amplifying said optical signal to be input into said optical waveguide structure; and passing the amplified said optical signal through a first optical fiber for providing normal dispersion and a second optical fiber for providing anomalous dispersion. Claim 12 recites a method "wherein said optical signal to be input into said optical waveguide structure comprises WDM signal light obtained by wavelength division multiplexing a plurality of optical signals."

Claim 13 recites a method device, "wherein said optical waveguide structure comprises an optical fiber for providing normal dispersion, said optical fiber having a dispersion large enough to eliminate the occurrence of crosstalk between channels of said WDM signal light." Claim 31 recites a method wherein "said optical waveguide structure comprises a first optical fiber for providing normal dispersion; said method further comprising the step of amplifying an optical signal output from said optical filter and supplying an amplified optical signal to a second optical fiber for providing normal dispersion."

To establish a *prima facie* case of obviousness based on multiple references, there must be some teaching that would have led one of ordinary skill in the art at the time of the invention to combine the references. MPEP § 2143.01; *In re Thrift*, 63 U.S.P.Q.2d 2002, 2006 (Fed. Cir. 2002)(quoting *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988)); *In re Rouffet*, 47 U.S.P.Q.2d 1453, 1455 (Fed. Cir. 1998).

The Examiner's basis for combining even the prior references of Mamyshev and Taneda was the assumption that Taneda discusses "an optical filter having transmission bands at longer

and shorter wavelength sides that a center wavelength of the output optical signal output from the optical waveguide structure and the transmission bands at longer and shorter wavelength sides being longer and shorter for a predetermined wavelength distant from the center wavelength."

However, as shown above, Taneda does not discuss transmission bands at longer and shorter wavelength sides. Thus the Examiner's contention that it is obvious to modify Mamyshev to incorporate such a feature , that is not in Taneda, is not valid.

Further, the Examiner has not provided any motivation, or citation to such motivation, for combination of Mamyshev and Taneda with Doran regarding claims 8, 10-13, and 31.

Since *prima facie* case of obviousness is not established, the rejection is incorrect.

L. Claims 22-25 and 32

Claims 22-25 and 32 more specifically recite a device, or features thereof. Claim 22 recites a device further comprising "means for performing pulse compression on said optical signal to be input into said optical waveguide structure." Claim 23 recites a device wherein said "pulse compression performing means comprises a first optical fiber for providing normal dispersion and a second optical fiber for providing anomalous dispersion." Claim 24 recites a device wherein said "optical signal to be input into said optical waveguide structure comprises WDM signal light obtained by wavelength division multiplexing a plurality of optical signals."

Claim 25 recites a device wherein "said optical waveguide structure comprises an optical fiber for providing normal dispersion, said optical fiber having a dispersion large enough to eliminate the occurrence of crosstalk between channels of said WDM signal light."

Claim 32 recites a device "wherein said optical waveguide structure comprises a first optical fiber for providing normal dispersion; said device further comprising an optical amplifier for amplifying an optical signal output from said optical filter, and a second optical fiber for accepting an optical signal amplified by said optical amplifier; said second optical fiber providing normal dispersion."

As shown above, to establish a *prima facie* case of obviousness based on multiple references, there must be some teaching that would have led one of ordinary skill in the art at the time of the invention to combine the references. Taneda does not discuss transmission bands at longer and shorter wavelength sides. Thus the Examiner's contention that it is obvious to

modify Mamyshev to incorporate such a feature , that is not in Taneda, is not valid.

Further, the Examiner has not provided any motivation, or citation to such motivation, for combination of Mamyshev and Taneda with Doran.

Since *prima facie* case of obviousness is not established, the rejection is incorrect.

VI. CONCLUSION

In summary, Applicants submits that all pending claims 1-32 patentably distinguish over the prior art. Reversal of the Examiner's rejection is respectfully requested.

Respectfully submitted,

STAAS & HALSEY LLP

Date: april 26, 2005

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CLAIMS APPENDIX (37 CFR § 41.37(c)(1)(viii))

1. (PREVIOUSLY PRESENTED) A method comprising:

inputting an optical signal into an optical waveguide structure for providing a nonlinear effect;

generating chirp in said optical signal by said nonlinear effect; and

supplying an output optical signal output from said optical waveguide structure to an optical filter having transmission bands at longer and shorter wavelength sides than a center wavelength of said output optical signal output from said optical waveguide structure to remove a component in which said chirp is small from said output optical signal, said transmission bands at longer and shorter wavelength sides being longer and shorter for a predetermined wavelength distant from said center wavelength.

2. (ORIGINAL) A method according to claim 1, wherein said optical waveguide structure comprises an optical fiber for providing normal dispersion.

3. (ORIGINAL) A method according to claim 1, wherein said optical filter comprises an optical bandstop filter having a center wavelength substantially coinciding with the center wavelength of said optical signal.

4. (PREVIOUSLY PRESENTED) A method according to claim 3, further comprising supplying said output optical signal to an optical bandpass filter to remove a component in which said chirp is larger than that in a main slope portion of a pulse of said optical signal.

5. (PREVIOUSLY PRESENTED) A method according to claim 1, further comprising supplying said optical signal to be input into said optical waveguide structure to an optical filter to remove a noise component outside of a signal band in said optical signal.

6. (PREVIOUSLY PRESENTED) A method according to claim 1, further comprising optically amplifying said optical signal to be input into said optical waveguide structure so that a required amount of chirp is obtained.

7. (PREVIOUSLY PRESENTED) A method according to claim 1, further comprising

supplying said output optical signal to a dispersion compensator so that said output optical signal undergoes dispersion compensation.

8. (PREVIOUSLY PRESENTED) A method according to claim 7, wherein:

said optical waveguide structure comprises a first optical fiber for providing normal dispersion; and

said dispersion compensator comprises a second optical fiber for providing anomalous dispersion;

said method further comprising adjusting a dispersion and input power of said second optical fiber so that pulse compression is performed to such an extent that a defect near the pulse peak of an optical signal output from said second optical fiber is reduced.

9. (PREVIOUSLY PRESENTED) A method according to claim 8, further comprising supplying said optical signal output from said second optical fiber to an optical bandpass filter so that the pulse width of said optical signal output from said second optical fiber substantially coincides with the pulse width of said optical signal input into said first optical fiber.

10. (PREVIOUSLY PRESENTED) A method according to claim 1, further comprising performing pulse compression on said optical signal to be input into said optical waveguide structure.

11. (PREVIOUSLY PRESENTED) A method according to claim 10, wherein said pulse compression performing step comprises :

amplifying said optical signal to be input into said optical waveguide structure; and

passing the amplified said optical signal through a first optical fiber for providing normal dispersion and a second optical fiber for providing anomalous dispersion.

12. (ORIGINAL) A method according to claim 1, wherein said optical signal to be input into said optical waveguide structure comprises WDM signal light obtained by wavelength division multiplexing a plurality of optical signals.

13. (ORIGINAL) A method according to claim 12, wherein said optical waveguide structure comprises an optical fiber for providing normal dispersion, said optical fiber having a dispersion large enough to eliminate the occurrence of crosstalk between channels of said WDM signal light.

14. (PREVIOUSLY PRESENTED) A device comprising:

an optical waveguide structure for providing a nonlinear optical effect so that chirp is generated in an optical signal input; and

an optical filter having transmission bands at longer and shorter wavelength sides than a center wavelength of said output optical signal output from said optical waveguide structure for accepting an output optical signal output from said optical waveguide structure to remove components in which said chirp is small and large from said output optical signal, said transmission bands at longer and shorter wavelength sides being longer and shorter for a predetermined wavelength distant from said center wavelength.

15. (ORIGINAL) A device according to claim 14, wherein said optical waveguide structure comprises an optical fiber for providing normal dispersion.

16. (ORIGINAL) A device according to claim 14, wherein said optical filter comprises an optical bandstop filter having a center wavelength substantially coinciding with the center wavelength of said optical signal.

17. (ORIGINAL) A device according to claim 16, further comprising an optical bandpass filter for accepting said output optical signal to remove a component in which said chirp is larger than that in a main slope portion of a pulse of said optical signal.

18. (ORIGINAL) A device according to claim 14, further comprising an optical filter for accepting said optical signal to be input into said optical waveguide structure to remove a noise component outside of a signal band in said optical signal.

19. (ORIGINAL) A device according to claim 14, further comprising an optical

amplifier for optically amplifying said optical signal to be input into said optical waveguide structure so that a required amount of chirp is obtained.

20. (ORIGINAL) A device according to claim 15, further comprising a dispersion compensator for accepting said output optical signal.

21. (ORIGINAL) A device according to claim 20, wherein:

said optical waveguide structure comprises a first optical fiber for providing normal dispersion; and

said dispersion compensator comprises a second optical fiber for providing anomalous dispersion;

said device further comprising an optical bandpass filter for accepting an optical signal output from said second optical fiber so that the pulse width of said optical signal output from said second optical fiber substantially coincides with the pulse width of said optical signal input into said first optical fiber.

22. (ORIGINAL) A device according to claim 14, further comprising means for performing pulse compression on said optical signal to be input into said optical waveguide structure.

23. (ORIGINAL) A device according to claim 22, wherein said pulse compression performing means comprises a first optical fiber for providing normal dispersion and a second optical fiber for providing anomalous dispersion.

24. (ORIGINAL) A device according to claim 14, wherein said optical signal to be input into said optical waveguide structure comprises WDM signal light obtained by wavelength division multiplexing a plurality of optical signals.

25. (ORIGINAL) A device according to claim 24, wherein said optical waveguide structure comprises an optical fiber for providing normal dispersion, said optical fiber having a dispersion large enough to eliminate the occurrence of crosstalk between channels of said WDM signal light.

26. (PREVIOUSLY PRESENTED) A system comprising:

an optical fiber transmission line for transmitting an optical signal; and

an optical signal regenerating device for accepting an optical signal output from said optical fiber transmission line;

said optical signal regenerating device comprising an optical waveguide structure for providing a nonlinear optical effect so that chirp is generated in said optical signal supplied, and an optical filter having transmission bands at longer and shorter wavelength sides than a center wavelength of said output optical signal output from said optical waveguide structure for accepting an output optical signal output from said optical waveguide structure to remove a component in which said chirp is small and large from said output optical signal, said transmission bands at longer and shorter wavelength sides being longer and shorter for a predetermined wavelength distant from said center wavelength.

27. (ORIGINAL) A system according to claim 26, further comprising a second optical fiber transmission line for transmitting said output optical signal.

28. (ORIGINAL) A system according to claim 27, further comprising an optical transmitter connected to an input end of said optical fiber transmission line, and an optical receiver connected to an output end of said second optical fiber transmission line.

29. (ORIGINAL) A system according to claim 26, wherein said optical signal transmitted by said optical fiber transmission line comprises WDM signal light obtained by wavelength division multiplexing a plurality of optical signals.

30. (ORIGINAL) A system according to claim 27, wherein each of said optical fiber transmission line and said second optical fiber transmission line comprises an optical amplifier repeater transmission line including at least one optical amplifier.

31. (ORIGINAL) A method according to claim 1, wherein:

said optical waveguide structure comprises a first optical fiber for providing normal

dispersion;

said method further comprising the step of amplifying an optical signal output from said optical filter and supplying an amplified optical signal to a second optical fiber for providing normal dispersion.

32. (ORIGINAL) A device according to claim 14, wherein:

said optical waveguide structure comprises a first optical fiber for providing normal dispersion;

said device further comprising an optical amplifier for amplifying an optical signal output from said optical filter, and a second optical fiber for accepting an optical signal amplified by said optical amplifier;

said second optical fiber providing normal dispersion.